

## Virtual Beverage Bar Design and Analysis System

### BACKGROUND AND SUMMARY

Beverage machines are used to produce a variety of beverages in a variety of establishments such as, for example, cafeterias, restaurants, and convenience stores (collectively, "establishments"). Operators, managers, owners, and others in charge of such establishments (referred to hereinafter for simplicity as "Owners") are often faced with several tasks related to beverage machines. These tasks include, such as, for example, selecting a particular beverage machine, deciding on an arrangement or location for each piece of beverage equipment in the establishment, and ordering raw materials for use in the machine. It would be useful for Owners to have a tool to help them with such tasks.

In addition, Owners may also be responsible for analyzing the profitability of the purchased beverage machines or comparing the profitability of several beverage machines under consideration for purchase. It would be useful for owners to have a tool to assist them in such profitability analyses.

The present disclosure relates to a system, method, and computer program product for assisting owners in designing a beverage bar. The term "beverage bar" as used throughout this disclosure is meant to include any arrangement or configuration of one or more pieces of equipment, such as, but not limited to, beverage machines on a counter within an establishment. The system allows virtual manipulation of various beverage machines. The term beverage bar is intended to be expansively interpreted and is not limited to beverage equipment. Reference to "beverage" and "beverage equipment" is used for clarity and efficiency even though any type of equipment placement is contemplated under this application. Also provided is a system which functions to analyze the profitability of a particular beverage bar configuration. Finally, the system provides detailed specification sheets on the beverage machines selected to be included in the beverage bar for easy analysis and/or ordering.

Additional features will become apparent to those skilled in the art upon consideration of the following detailed description of drawings exemplifying the best mode as presently perceived.

### BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description particularly refers to the accompanying figures in which:

FIG. 1 is a simplified diagrammatic overview of the steps in the method for using a beverage bar design, development, and analysis system.

FIG. 2 is a simplified diagrammatic view of the beverage bar design, development, and analysis system;

5        FIG. 3 is a screenshot of an embodiment of a beverage bar design, development, and analysis software product showing a choice between systems of measurement;

FIG. 4, 5, 6 are screenshots of an embodiment of a beverage bar design, development, and analysis software product showing a choice of counter length,  
10       counter depth, and clearance above counter, respectively;

FIG. 7 is a screenshot of an embodiment of a beverage bar design, development, and analysis software product showing a choice of background color;

FIG. 8 is a screenshot of an embodiment of a beverage bar design, development, and analysis software product showing a top menu for selecting  
15       beverage machines;

FIG. 9 is screenshot of an embodiment of a beverage bar software product showing a second menu which is based on a selection made at the top menu of FIG. 8.

FIG. 10 is a screenshot of beverage bar with a variety of beverage machines positioned thereon;

20       FIG. 11 is a screenshot of an error message shown when dimensional limits are exceeded;

FIG. 12 is a screenshot of instructions provided prior to accepting or overriding cost information for selected types of beverage machines;

FIG. 13 is a screenshot of an interface for accepting or overriding cost  
25       information for coffee machines;

FIG. 14 is a screenshot of an interface for accepting or overriding cost information for iced tea machines;

FIG. 15 is a screenshot reporting the total profit for the beverage bar as designed;

30       FIG. 16, 17, & 18 are screenshots of options to print in a basic format, standard format, and deluxe format, respectively;

FIG. 19, & 20 are sample printouts of beverage machine specifications that are printed when the deluxe format is selected;

FIG. 21 is a screenshot of a total beverage bar screen showing a payback

calculator button;

FIG. 22 is a screenshot in which a user can input beverage machine pricing information; and

FIG. 23 is a screenshot showing the time in which the cost of the selected  
5 beverage equipment is paid back as a result of the beverage bar's profits.

#### DETAILED DESCRIPTION OF THE DRAWINGS

While the present disclosure may be susceptible to embodiment in different forms, there is shown in the drawings, and herein will be described in detail, embodiments with the understanding that the present description is to be considered  
10 an exemplification of the principles of the disclosure and is not intended to limit the disclosure to the details of construction and the arrangements of components set forth in the following description or illustrated in the drawings.

The term "beverage machine" or "beverage machine" as used throughout this disclosure is meant to generally refer to beverage making apparatuses including but  
15 not limited to coffee makers, coffee brewers, coffee grinders, juice machines, frozen beverage machines, hot water machines, and soup dispensers. Further, as noted above, this term is meant to be representative of a type of machine although any type or variety of machine may be contemplated by this application.

With reference to the figures, FIG. 2 shows the components of a system 60 for  
20 designing, developing, and analyzing a virtual beverage bar. The bar is "virtual" because it exists at least initially in electronic format for display on an output device 74. In one embodiment, the system 60 is implemented using a programmed general purpose computer 62 which includes a processor 64, memory 65, a storage device 68, either on-board or remote, such as hard drive, tape drive, or floppy disk, and a  
25 program module 66 stored on the storage device 68. In such an embodiment, the system 60 would also include one or more output devices 74 such as a monitor or printer, and one or more input devices 72 such as, for example, a keyboard, mouse, touch display or voice control. The system 60 may also include a communications interface 67 such a network port, network card, or modem, usable with any  
30 combination of wired or wireless connections, for communicating with other computers.

The processor 64 is programmed to operate using instructions received from the software module 66 which may be loaded on the system using a portable storage

reader 70 such as, including but not limited to, a CD-ROM, DVD-ROM, or floppy disk drive, or may be loaded from the memory 65. The term "module" referenced in this disclosure is meant to be broadly interpreted and broadly cover various types of software code including but not limited to routines, functions, objects, libraries, classes, members, packages, procedures, methods, or lines of code together performing similar functionality to these types of coding.

In another embodiment, the system 60 may be an integrated device such as a laptop computer, tablet PC, or handheld device such as a personal digital assistant. In such an embodiment, one or more the components mentioned above may be built into the system 60.

It is also envisioned that the present system 60 can be embodied on an Internet based system for use by multiple users simultaneously and remote storage and retrieval of information. It is also envisioned that the system 60 can be implemented using as an ASP model. The present system may also be used to connect a user via a communication network, such as the Internet, to an interface, such as a web site, of a seller or manufacturer of the equipment. The system may also be used to generate an email to a seller or manufacturer requesting information about equipment, or to order equipment.

In use, system 60 operates according to the method show in FIG. 1. The method is described hereinafter by describing steps as shown in FIG. 1 along with screenshot examples as shown in other referenced figures. These screenshots are shown for illustrative purposes only as one type of interface used to perform the method. The actual screen displays may differ while still embodying the method disclosed.

First, several space-determining values are established through a series of dialogs. Each of these values may be retrieved from a set of default values or be entered by a user. The user selects a system of units 30 to be used in the measurement or calculations to determine the number of beverage machines that fit on the surface that will act as the beverage bar of a predetermined size. As shown in FIG. 3, the system of units 30 may be metric or English (U.S. customary system), or any other suitable system. Next, the user chooses a surface area value by accepting default area dimensions 32 for the surface on which the beverage machines are placed, or overriding the values as desired. A length dimension, width dimension, and clearance dimension are confirmed or entered as shown in FIG. 4, 5, and 6. Display options 34

may also be selected, such as selecting a background color as exemplified in FIG. 7. This may be useful to help the user recognize and understand the appearance of the beverage bar he is working with since he may be able to choose a color similar to the intended setting for the beverage bar.

5           An initially empty graphical representation of the surface is then shown (FIG. 8) with several menus and running totals of used space versus available space (see lower left). The open space value is initially set to the surface area value. In the embodiment shown in FIG. 8, buttons for adding beverage machines are selected or clicked (see lower right), followed by selecting a particular beverage machine through  
10 a series of menus representing different types of beverage machines. A selection step 36 is performed by clicking on one of the types of beverage machines which may include those shown in FIG. 8 (Coffee, Iced Tea, Grinders, Specialty, Hot Water), but which may include or be organized in various other categories as well without departing from this selection step 36.

15           As an example, when clicking on the "Coffee" category, a drop down list showing the various sub-categories (Automatics, Satellites, Airpots, Thermal Servers, Urns, Pourovers, and Warmers) is produced. Selecting "Automatics" produces a list of automatic coffee machines as shown in FIG. 9. Clicking on a particular piece of equipment causes a graphical representation of the selected beverage equipment to be  
20 shown in the virtual beverage bar that can be positioned 42 anywhere on the bar using an input device 72. Additional beverage machines may be added 44, moved around, or removed until the user is satisfied. FIG. 10 shows a virtual beverage bar with several beverage machines positioned thereon.

          It is envisioned that variations of the drop down lists shown may be used such  
25 as including a thumbnail graphic of the beverage machine. Also envisioned is a dialog box being displayed requesting criteria to help select a particular beverage machine to include in the beverage bar.

          Before each beverage machine selection 36, the system 60 performs an error  
30 check 38 to determine whether the space demand value, i.e. the amount of space or envelope needed to fit a piece of equipment having the length and width of the selected piece of equipment, exceeds the amount of open space remaining. The system calculates the open space value by initially setting it to the surface area value, and then iteratively reducing the open space value by a used space value. The used space value is the sum of the space demand values of each piece of placed beverage

equipment. An error message 40, such as the error message shown in FIG. 11, may be displayed if the user attempts to place a piece of equipment that would cause the open space value to become negative. In another embodiment, the system 60 may simply reject placement of the additional beverage machine on the virtual beverage  
5 bar.

When the user is satisfied, which may be indicated by the user by clicking on the "Done" button shown in FIG. 10, the user is then able to accept or override default costs and serving information 46 related the types of selected beverage machines. An instruction screen like the screen shown in FIG. 12 may be displayed to provide  
10 instructions regarding this ability. The values entered are used to calculate a cost value for the beverage bar configuration, the cost value being the raw material and/or equipment expenses related to running the beverage bar, and a projected income value for the beverage bar configuration, the projected income value being an income expected to be generated based on product pricing. As shown in FIG. 13, the  
15 information 46 may include, but is not limited to, a cost per unit value, a serving size, percent refills, projected number of daily refills value, number of locations value, price per serving value, projected number of daily sold servings value, and a projected charge per refill value. As these values are changed, the profit for a particular period, which is one year in the example shown in FIG. 13, is displayed as a profitability  
20 report. Other periods such as a monthly, quarterly, daily, weekly, and so forth may also be used.

These settings are beverage machine type specific because the raw materials and other beverage-machine related information 46 differ depending on the type of beverage bar machine. In one embodiment shown in Fig. 13, information 46 may be  
25 adjusted for each of the beverage machine type shown (Coffee, Iced Tea, and Granita). This ability to adjust the information 46 allows a user/Owner to analyze different pricing scenarios for the product sold. The profit value for a particular time period, such as for a year, is immediately displayed allowing a user to make predications, and other related business decisions, regarding how the beverage bar is  
30 to be implemented.

Although default values are provided, users may wish to adjust or override these values for a variety of reasons. One example is to adjust "cost per ounce," as shown in FIG. 13, based on the amount of coffee used for a particular brew. A user may wish to use more or less coffee depending on regional preferences for coffee

strength, the types of coffee used, recipe preferences, and the type of coffee brewed relating to the reputation of the restaurant or coffee provider. For example, the quantity of coffee used per brew may change depending on the type of roast, quality, and type of bean, flavoring added to the ground coffee, and whether the coffee is fresh  
5 ground or ground and packaged.

When the user is satisfied with the user's adjustments of the information 46, which may be relayed by clicking the "Total" button, the total beverage profit 48 is displayed as shown in FIG. 15. The user is then presented with print options 50. In the embodiment shown in the FIGS. 16-18, the print options 50 lead to printing  
10 different types of reports. The "basic" print option prints a report showing only the beverage bar along with the total profit 48. The "standard" print option adds a report showing the information 46 used in determining the total profit 48. Finally, the "deluxe" print option includes specification sheets, such as those shown in FIGS. 19-20, for each beverage machine included in the beverage bar.

15 In another embodiment, a "Payback Calculator" feature may be utilized. This feature may be activated in the screen showing the beverage bar profit as shown in FIG. 21. The payback calculator allows a user to input beverage machine pricing information to show the user how long the user must own the equipment, for the user's set cost parameters, in order to recoup the price of the beverage machines  
20 selected for the beverage bar. This time period is herein referred to as a "pay-for-itself time period value." FIG. 22 shows an example of one embodiment of such a beverage machine price input screen. In this example, price per unit is inputted in the "Price per Unit" column for the corresponding beverage machine shown in the "Product Name" column. As shown, unit quantity may be updated as well. As shown  
25 in FIG. 23, the payback calculator feature reports the number of weeks before the profit pays off the price of the equipment selected to be included in the beverage bar. Although weeks are shown, the time units may be in days, months, years, or other time units as appropriate.

A computer program product, which may distributed by, for example, a disk,  
30 CD-ROM, DVD, or other computer-readable medium, or via download, or otherwise by a modulated signal, may also be an embodiment of the above system and method. The computer program product may be composed of a number of modules programmed to request the inputs, communicate with a processor to process the calculations, communicate with an output device to display the results, and to perform

the other functions needed to design and analyze a beverage bar.

With the functional descriptions provided above, one skilled in the art can use a variety of software authoring products, such as, for example, a programming language such as C++, to produce code to programmably operate the system 60. The  
5 computer program product may also be designed to operate the system across a communications network, such as the Internet, and to allow multiple users thereon. The computer program product may be fixed in a variety of mediums such as floppy disk, CD-ROM, or DVD-ROM.

While embodiments of the disclosure are shown and described, it is envisioned  
10 that those skilled in the art may devise various modifications and equivalents without departing from the spirit and scope of the disclosure as recited in the following claims.